

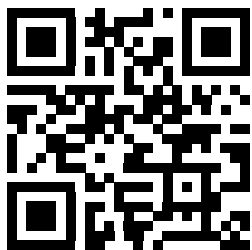
Variable Frequency Drives for horizontal Conveyor Applications

NORDAC *ON* and *ON+* SK 300P Series



Top Class VFD Technology

NORDAC *ON*, SK 300P Series



[NORDAC *ON*](#)

The NORDAC *ON* is a compact, smart variable frequency drive for decentralized use that has been developed to meet the special requirements of horizontal conveyor technology, as well as for the interaction with the new IE5+ synchronous motor (NORDAC *ON+*).

Focused

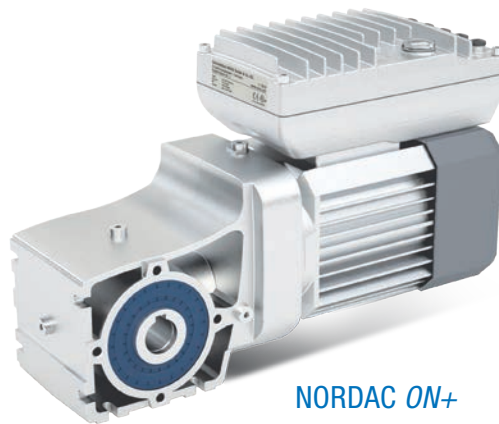
The NORDAC *ON* / *ON+* is optimized for the common range of functions in horizontal conveyor technology. The following functions are included as standard:

- ▶ Integration of sensors via digital inputs
- ▶ If required, an integrated brake chopper dissipates regenerative energy to an optional braking resistor
- ▶ Brake management for optimum control of an electromagnetic holding brake for wear-free brake actuation
- ▶ Quick and simple diagnostics via easily visible LED indicators
- ▶ The Safe Torque Off (STO) function can be optionally integrated into the VFD and is controlled via two STO inputs

Compact

Three frame sizes are available for the power range from 0.50 to 4.0 hp (NORDAC *ON/ON+*). The compact designs are able to be motor or wall mounted based on the application and space requirements.

NORDAC *ON* was designed for use with asynchronous motors whereas NORDAC *ON+* is intended to be used with synchronous motors and supplements the NORD high-efficiency portfolio around the new IE5+ motor generation.

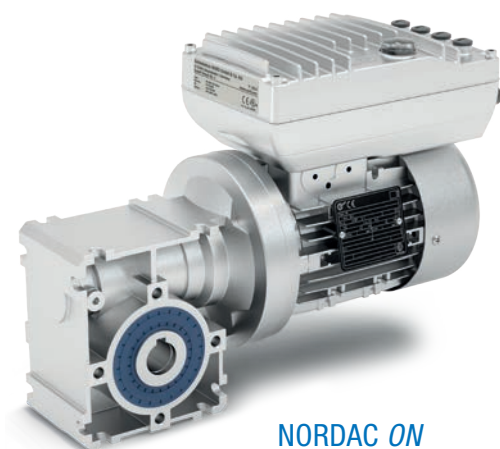


NORDAC *ON+*

Digitalization

As with all NORD variable frequency drives, this member of the NORDAC family is equipped with a powerful PLC for functionality close to the drive. It can process the data from connected sensors and actuators, autonomously initiate control sequences, and communicate drive and application data to the control center, networked components, or to cloud storage.

For this purpose, both VFD versions have an integrated multi-protocol Ethernet interface for easy integration into modern automation systems. Whether for ProfiNet, EtherNet/IP, or EtherCAT – the required protocol can be easily set via parameters.



NORDAC ON

100% Plug-and-Play

All connections are pluggable and ensure quick, easy, error-minimized commissioning, and maintenance on site. The 24 V DC supply for control and communication is also integrated in the 3-phase 400 V supply and interfaces to the drive via a 6-pole plug connector. The daisy chain connector can be used to supply power to several drives in the series in order to optimize the required cable length.

Robust




The NORDAC ON / ON+ housing is made entirely from aluminium and with an IP protection class up to IP66, making it suitable for harsh environmental conditions. These VFDs can be operated in temperature ranges from -30 to +40°C, making them ideal for both deep-freeze and high-heat applications.



NORDAC ON
Wall-mounted version

Standards and Approvals

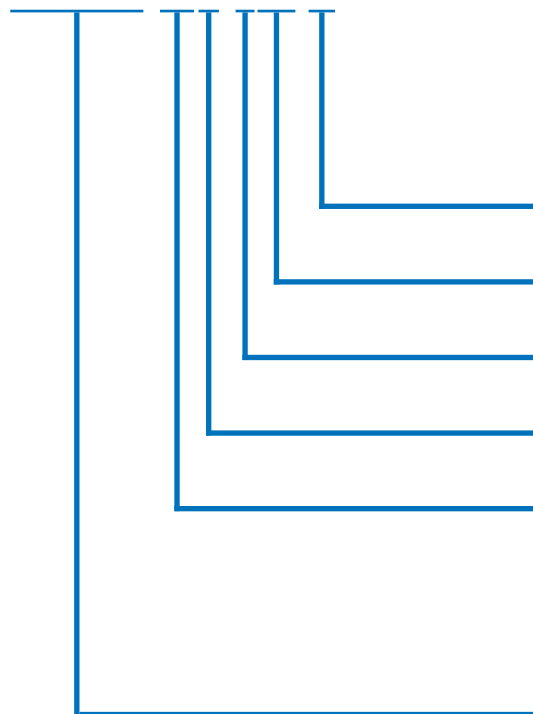
All drives comply with the standards and directives listed below.

Approval	Directive	Applied Standards	Certificates	Label
CE (European Union)	Low Voltage Directive 2014/35/EU	EN 61800-5-1 EN 60529	C310001	
	EMC 2014/30/EU	EN 61800-3 EN 63000		
	RoHS 2011/65/EU	EN 61800-9-1 EN 61800-9-2		
	Delegated directive (EU) 2015/863			
	Ecodesign 2009/125/EG			
	Regulation (EU) Ecodesign 2019/1781			
UL (USA)		UL 61800-5-1	E171342	
CSA (Canada)		C22.2 No.274-13	E171342	
RCM (Australien)	F2018L00028	EN 61800-3	C310001	
EAC (Eurasia)	TR CU 004/2011, TR CU 020/2011	IEC 61800-5-1 IEC 61800-3	in preparation	
UkrSEPRO (Ukraine)		EN 61800-5-1 EN 60529 EN 61800-3 EN 63000 EN 60947-1 EN 60947-4 EN 61558-1 EN 50581	C311900	
UKCA (United Kingdom)		EN 61800-5-1 EN 60529 EN 61800-3 EN 63000 EN 61800-9-1 EN 61800-9-2	C352000	

Type Code

Variable Frequency Drive

SK 300P-360-340-A



Radio interference filter: A = Class A1 (C2)

Mains voltage: x40 = 400 V

Number of mains phases: 3xx = 3-phase

Digits before decimal point for power: 0 = 0.xx, 1 = 0x.x0, 2 = 0xx.0

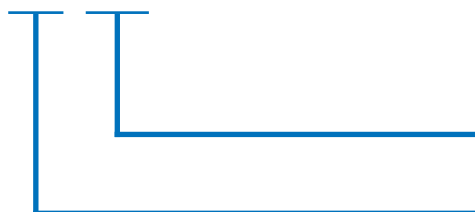
Device rated power:

- 360 = 0.36 kW / 0.50 hp, Size 1,
- 450 = 0.45 kW / 0.60 hp, Size 1,
- 370 = 0.37 kW / 0.50 hp, Size 2,
- 750 = 0.75 kW / 1.00 hp, Size 2,
- 950 = 0.95 kW / 1.27 hp, Size 2,
- 111 = 1.10 kW / 1.50 hp, Size 3,
- 151 = 1.50 kW / 2.00 hp, Size 3,
- 191 = 1.90 kW / 2.50 hp, Size 3,
- 221 = 2.20 kW / 3.00 hp, Size 3,
- 301 = 3.00 kW / 4.00 hp, Size 3,
- 371 = 3.70 kW / 5.00 hp, Size 3

Device series: SK 300P, NORDAC *ON* without functional safety
 SK 301P, NORDAC *ON* with functional safety
 SK 310P, NORDAC *ON+* without functional safety
 SK 311P, NORDAC *ON+* with functional safety

Customer Units

SK CU6-STO



Option type: STO = Safe stop

Group: CU6 = Customer unit

NORDAC *ON* and NORDAC *ON+* All Versions at a Glance

	NORDAC <i>ON</i> SK 30xP	NORDAC <i>ON</i> SK 30xP	NORDAC <i>ON+</i> SK 31xP
Power	0.25 - 1.00 hp	0.25 - 1.00 hp	0.50 - 1.27 hp
Size	1	2	2
Sensorless current vector control (ISD control)	●	●	●
RS-485/RS-232 diagnostic interface via RJ12	●	●	●
4 switchable parameter sets	●	●	●
All normal drive functions	●	●	●
Parameters pre-set with standard values	●	●	●
Stator resistance measurement	●	●	●
Energy-saving function, optimized efficiency in partial load operation	●	●	●
Class C2 line filter, motor-mounted or up to 5 m motor cable for wall-mounting	●	●	●
Monitoring functions	●	●	●
Load monitor	●	●	●
POSICON	○	○	●
PLC functionality	●	●	●
Ethernet communication: EtherCAT, Ethernet IP, ProfiNet IO	●	●	●
External 24 V DC power supply for the control board	●	●	●
Brake management for mechanical Holding brake	○	●	●
Brake chopper (braking resistor optional)	○	●	●
"Safe Torque Off" and "Safe Stop" (STO, SS1-t) functions	○	●	●
Internal braking resistors	○	●	●

¹ With integrated optional module SK CU6-STO, connection via M12 plug connectors

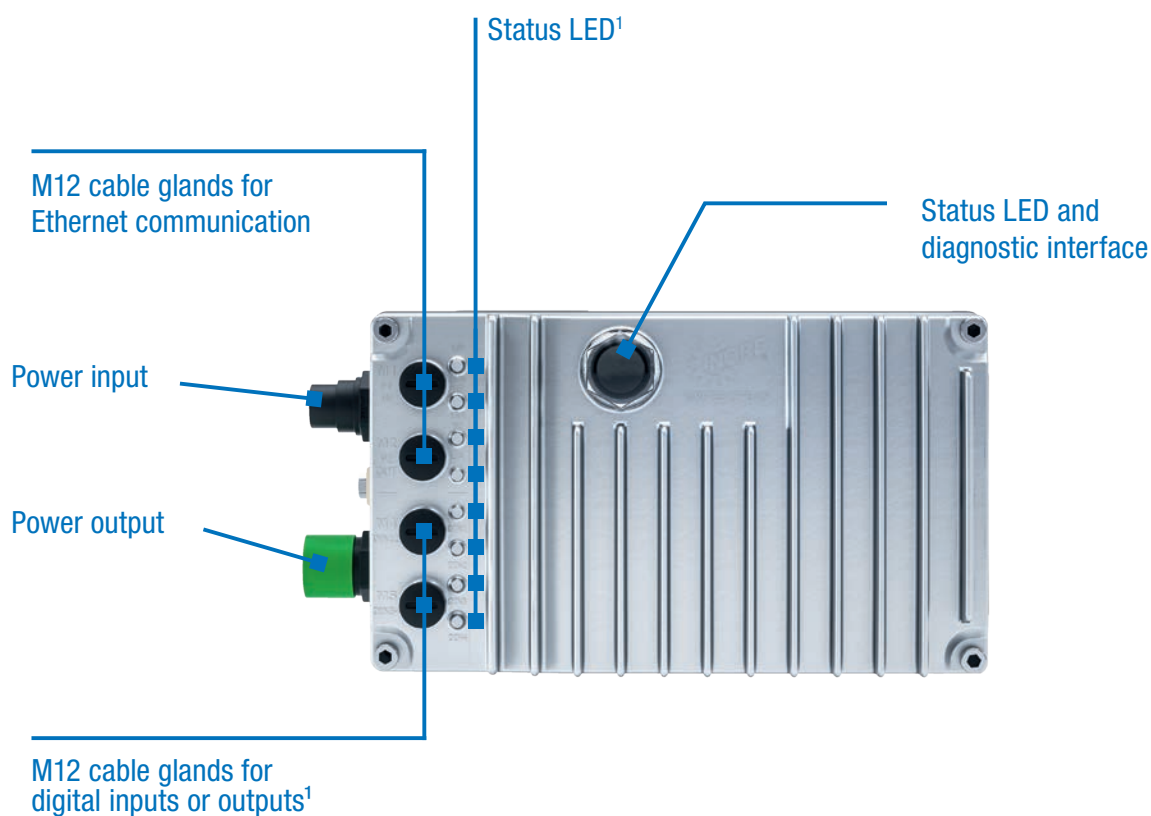
● Available as standard
 ● Optional
 ○ Not available

Introduction
 NORDAC PRO SK 500P
 NORDAC PRO SK 500E
 NORDAC LINK
 NORDAC ON
 NORDAC FLEX
 NORDAC BASE
 NORDAC START
 Accessories

	NORDAC ON SK 30xP	NORDAC ON SK 30xP	NORDAC ON+ SK 31xP
Power	0.25 - 1.00 hp	0.25 - 1.00 hp	0.50 - 1.27 hp
Size	1	2	2
Mountable on IE3 motor	●	●	○
Mountable on IE5+ motor	○	○	●
RS-485 encoder interface	○	○	●
DIN via M12 plug connector	4-2 ¹	4-4 ² -2 ²	4-4 ² -2 ²
DOUT via M12 plug connector	0-2 ¹	2-0 ² -2 ²	2-0 ² -2 ²
Optional: SK CU6-STO via M12 plug connector	○	●	●
Mains input (3-phase 400 V) with integrated 24 V DC via plug connector	●	●	●
Mains output / daisy chain (3-phase 400 V) with integrated 24 V DC via plug connector	●	●	●
Thermostats (PTC)	●	●	●

¹ 2 digital IOs optionally parameterizable as DIN or DOUT

² Version SK 3x1P and higher has 4 DINs, 2 of which are optionally parameterizable as DIN or DOUT.



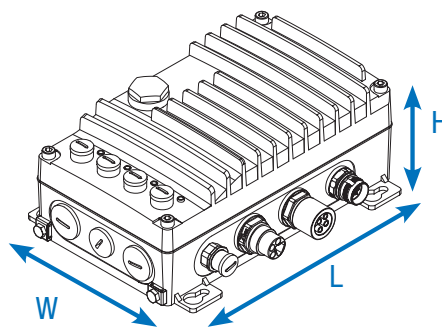
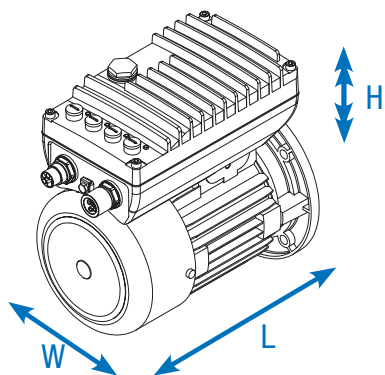
NORDAC ON SK 300P Variable Frequency Drive

3~400 ... 480 V

Output Frequency	0.0 ... 400.0 Hz	Protection Class	IP55, optional IP66 NEMA type 1 (higher NEMA classifications on request)
Pulse Frequency	3.0 ... 16.0 kHz	Regulation and Control	Sensorless current vector control (ISD), linear V/f characteristic curve
Typical Overload Capacity	150% for 60 s 200% for 3.5 s 250% for 1 s, only for asynchronous motors	Motor Temperature Monitoring	I ² t motor PTC / bimetallic switch
VFD Efficiency	approx. 95%	Leakage Current	< 30 mA
Ambient Temperature	-30°C ... +40°C (S1) -30°C ... +50°C (S3, 70% ED)		

VFD	Nominal Motor Power		Nominal Output Current rms [A]	Mains Voltage	Output Voltage	Size
	400 V [kW]	480 V [hp]				
SK 300P-360-340-A	0.37	0.5	1.3	3~ 400 ... 480 V, -20% / +10%, 47 ... 63 Hz	3~ 0 up to mains voltage	1
SK 3XXP-370-340-A	0.37	0.5	1.3			2
SK 300P-450-340-A	0.45	0.6	1.5			1
SK 3XXP-750-340-A	0.75	1.0	2.2			2
SK 3XXP-950-340-A	0.95	1.25	2.7			2
SK 3XXP-111-340-A	1.1	1.5	3.0			3
SK 3XXP-151-340-A	1.5	2.0	3.8			3
SK 3XXP-191-340-A	1.9	2.5	4.3			3
SK 3XXP-221-340-A	2.2	3.0	5.2			3
SK 3XXP-301-340-A	3.0	4.0	7.2			3
SK 3XXP-371-340-A	3.7	5.0	8.1			3





VFD SK 3xxP ...	Motor	Size	Weight		Dimensions for Motor Mounting excl. Motor		Size
			[kg]	[lbs]	L x W x H		
SK 30XP	-360-340-A BIS -450-340-A	IE3	63 – 71	1.5	3.30	230 x 121 x 79 mm 9.06 x 4.76 x 3.11 in	1
	-370-340-A BIS -950-340-A	IE3	63 – 80	1.9	4.19	260 x 130 x 83 mm 10.24 x 5.12 x 3.27 in	2
	-111-340-A bis -151-340-A	IE3	80 – 90	3.3	7.28	296 x 160 x 104 mm 11.65 x 6.30 x 4.09 in	3
	-191-340-A bis -301-340-A	IE3	90	3.5	7.72	296 x 160 x 123 11.65 x 6.30 x 4.84 in	3
SK 31xP	-370-340-A bis -950-340-A	IE5+	71	1.9	4.19	251 x 130 x 97 9.88 x 5.12 x 3.82 in	2
	-111-340-A bis -151-340-A	IE5+	90	3.4	7.50	285 x 160 x 124 11.22 x 6.30 x 4.88 in	3
	-221-340-A bis -371-340-A	IE5+	90	3.6	7.94	304 x 160 x 144 11.97 x 6.30 x 5.67 in	3
SK 35xP	-370-340-A bis -750-340-A	IE5+	71			277 x 133 x 122 10.91 x 5.24 x 4.80 in	2
	-111-340-A bis -151-340-A	IE5+	90			307 x 160 x 146 12.09 x 6.30 x 5.75 in	3

VFD SK 3xxP ...	Weight		Dimensions for wall mounting		Size
	[kg]	[lbs]	L x W x H		
SK 30XP/ SK 31XP	-360-340-A BIS -450-340-A	1.7	3.75	211 x 161 x 84 mm 8.31 x 6.34 x 3.31 in	1
	-370-340-A BIS -950-340-A	2.1	4.63	244 x 171 x 99 mm 9.61 x 6.73 x 3.90 in	2
	-111-340-A BIS -151-340-A	3.5	7.72	272 x 201 x 117 mm 10.71 x 7.91 x 4.61 in	3
	-191-340-A BIS -371-340-A	3.7	8.16	272 x 201 x 137 mm 10.71 x 7.91 x 5.39 in	3
SK 35XP	-370-340-A BIS -750-340-A			260 x 184 x 111 mm 10.24 x 7.24 x 4.37 in	2
	-111-340-A BIS -151-340-A			290 x 214 x 134 mm 11.42 x 8.42 x 5.28 in	3

NORDAC ON / ON+ Options

Functional Safety

NORDAC ON and NORDAC ON+ VFDs in sizes 2 and 3 can be configured with the functional safety option.

Available in the following devices:
SK 301P, SK 311P

Functions	IOs	Remarks
Functional safety: STO - PLe / SIL 3 SS1-t - PLd / SIL 2	2 safe DIN	Functional safety: 2-channel connection

Internal braking resistors

Internal braking resistors are intended for applications in which slight, very brief braking is to be expected.

Internal braking resistors cannot be retrofitted and must therefore be taken into account in the order. For thermal reasons, the rated continuous output is limited to 25%.

VFD	Wall Mounting	Motor Assembly	Resistance [Ω]	Continuous Output ¹	Power Consumption ¹	Size	
				[W]	E _{max} [kW]		
SK 30xP	-360-340-A to -950-340-A	●	●	400	70	0.9	2
	-111-340-A to -301-340-A	●	●	300	100	1.3	3
SK 31xP	-370-340-A to -950-340-A	●	●	400	70	0.9	2
	-111-340-A to -371-340-A	●		300	100	1.3	3
	-111-340-A to -371-340-A		●	200	200	2.0	3
SK 35xP	-370-340-A to -750-340-A	●	●	400	70	0.9	2
	-111-340-A to -151-340-A	●		300	100	1.3	3
	-111-340-A to -151-340-A		●	200	200	2.0	3

¹ Reduction of the continuous output of the braking resistor to 25% of the rated output

² Once within 10 s

Interfaces for Operation, Parameterization and Communication

Operation and Parameterization

Optional modules with up to 14 languages for displaying status and operational indicators, parameterization and operation of the variable frequency drive. In addition two variants for direct mounting on the device or installation in a control cabinet door are available, as well as handheld versions.

	Type Designation Part Number	Description	Remarks
	ParameterBox SK PAR-5H 275 281 614	Control and parameterization, LCD screen (illuminated), plain text display in 14 languages, direct control of up to five devices, memory for five device data sets, convenient control keypad, communication via RS-485, including 1.5 m connection cable. Handheld, suitable for installation in a control cabinet door. IP54.	Connection for data exchange with NORDCON <i>STUDIO</i> to a PC (USB 2.0), (standard "USB-C" connection cable required, e.g. material number: 275 292 100) Power supply, e.g. directly via VFD or PC
	SimpleControlBox SK CSX-3H 275 281 013	Control and parameterization, 4-digit 7-segment display, direct control of a device, convenient control keypad, including 2 m connection cable. Handheld, IP54.	Electrical data: 4.5 ... 30 V DC / 1.3 W Supply e.g. directly via the VFD.
	Control and parameterization software NORDCON	Software for control and parameterization as well as support for commissioning and fault analysis of NORD electronic drive technology. Parameter names in 14 languages.	Free download at: www.nord.com
	Bluetooth-Stick NORDAC <i>ACCESS BT</i> SK TIE5-BT-STICK 275 900 120	Interface for wireless connection to a mobile terminal device (e.g. tablet or smartphone) via Bluetooth. The NORDCON <i>APP</i> , the NORDCON software for mobile terminal devices, enables smart operation and parameterization as well as commissioning assistance and fault analysis of NORD electronic drive technology.	Available free of charge for Android and iOS: 

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